Virginia Oyster Shell Recycling and Outreach to Benefit the Lower Piankatank

FY18 Task 89.02
Final Report, Grant Period October 1, 2018 to Dec 31, 2020
Grant# NA18NOS4190152
Compiled by Todd Janeski,
VCU, Department of Life Sciences
Rice Rivers Center

This project was funded by the Virginia Coastal Program at the Department of Environmental Quality through Grant FY18: NA18NOS4190152 of the National Oceanic and Atmospheric Administration, Office of Ocean and Coastal Management, under the Coastal Zone Management Act of 1972, as amended.

Healthy Waters in the Coastal Zone
FY18 Task 89.02
Final Report, Grant Period March 1, 2020 to Dec 31, 2021
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Virginia Department of Conservation and Recreation,
Division of Natural Heritage

Overview
The Environmental Scientist/Analyst with the Virginia Commonwealth University (VCU) Department of Life Sciences (LS), Rice Rivers Center (RRC), serves as the director of the Virginia Oyster Shell Recycling Program (VOSRP). The RRC and VOSRP were awarded NOAA Chesapeake Bay Office (NCBO) funding through a subaward from the VACZM Program as a Section 310 project to support oyster shell recycling and communication targeting in the Richmond region, expansion of recycling to northern Virginia and a focused educational and outreach effort to communities in the lower middle peninsula. The ongoing challenge during the project period was the influence of the COVID-19 pandemic affecting every aspect of the program. Despite the challenges, the program made significant progress and exceeded the expectations in nearly every deliverable.

Due to the impact of the COVID-19 pandemic the project partners requested a no-cost time extension since the closure of restaurants greatly impacted the ability to advance the base activity of shell recycling. Due to business closures or changes to take-away service, their purchase volume of in-shell oysters dropped to nearly zero, causing immediate impacts to the volume of shucked shell. When restaurants began to slowly re-open, they were less willing to participate in the program since it often required granting permission for non-employees into employee-only areas. The pandemic also negatively affected the Program's ability to recruit volunteers to assist with the limited recycling opportunities due to restrictions in movement. VCU also imposed restrictions on group activities, group size and spacing between participants. While these restrictions posed unique challenges, the program and partners employed COVID-safe best practices, followed CDC guidance, VCU guidance and adjusted operations to continue to meet the obligations.

Richmond Region Recycling and Marketing Activities

The focus of the Richmond region task was on the implementation of shell recycling and development of marketing materials. As identified above, the COVID-19 pandemic significantly impacted shell recycling because of the business closures to mitigate the spread of the virus. The closures impacted the seafood industry directly causing a halt on the purchase of in-shell oysters by wholesalers. However, by implementing COVID-19 best practices that included reduced group size, masks and physical distancing, the Program was able to restart the shell bagging activities at the VCU Rice Rivers Center, hosting five events in 2020 and seven events in 2021.

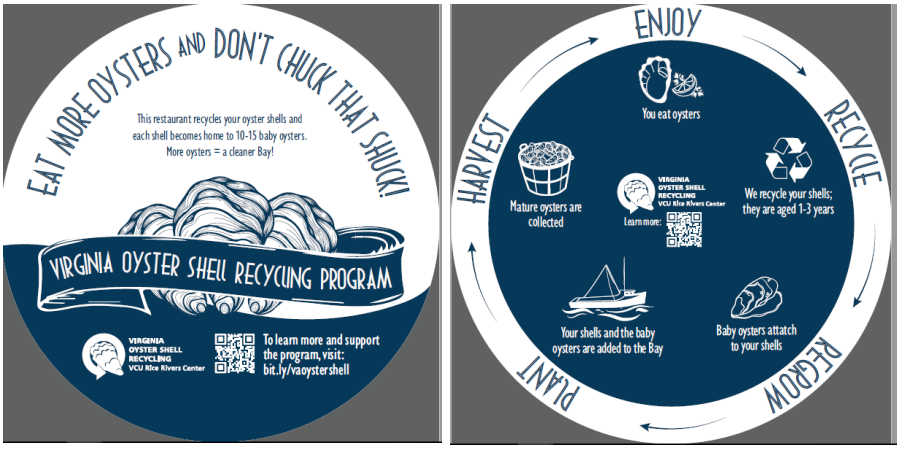
Masked, socially distant, limited group size, out-door shell bagging

Volunteers from Chesapeake Governors School Empty the Irvington Bin

As restaurants have slowly begun to see increases in patronage, the generation of shell began and the volunteers were recruited as the restaurants felt comfortable to have them in the business. Those Richmond restaurants to begin recycling the soonest included: Shagbark, Perch, and Boathouse at Rockett's Landing and the Boathouse at Hopewell. The introduction of new COVID-19 strains resulted in extended restrictions on restaurant operations. Additionally, the tight job market decreased staff's capacity to serve a raw in-shell item. The program did see an increase in public participation of shell recycling as the retail seafood businesses saw an increase in sales of seafood including in-shell. The public drop-off locations saw more shell in 2020 and 2021 than in previous years. Program partners such as Tuckahoe Seafood saw an increase in public drop-off of shell at their business. The limited restaurant participation resulted in maintenance of a flat average of shell in those two years. High volume generating restaurants either did not survive the pandemic or did not resume high weekly purchase rates. However, the steady and consistent flow did result in shell recycled. The anticipation is that 2022 with vaccines, new best practices, and reduction of restrictions will result in businesses resuming their normal activities. By the conclusion of the grant period, new smaller restaurants were initiating

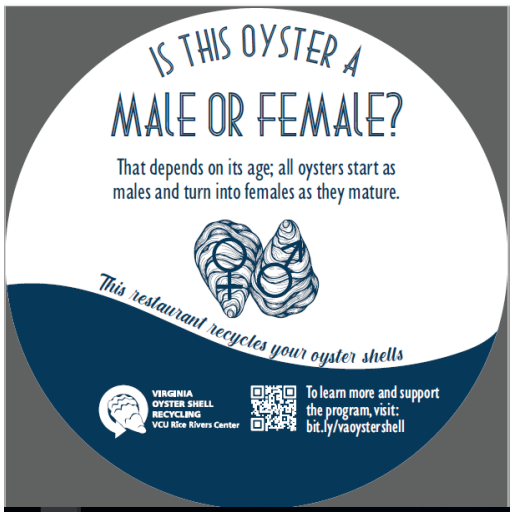
shell recycling illustrating a positive outlook on participation and material generation.

The program expanded the development of marketing materials to communicate the program and restaurant participation to patrons. The intent is to educate and inform restaurant patrons of the businesses' participation in shell recycling and their passive role in oyster restoration by purchasing oysters that have their waste shell integrated into the program. Initially the project team created mock images of peripheral materials and a survey for restaurant owners to obtain their feedback on use and placement. That survey refined the concepts into final designs and their feedback informed the development of coasters and host-station materials with cues to historic mixed fonts, images and themes. The survey also identified that there was not a consistent type of peripheral materials between types of restaurants. For example, some higher-end restaurants did not want table top materials but felt bill stuffers would be beneficial. While more casual restaurants saw value in placing materials on host stands and using coasters with the messages. In general, table top stands were rejected due to limited space at most seatings. All materials had a consistent and single means to access more information through the use of a QR Code, and bitly. On larger materials, the QR code, bitly, hashtags, and social media handles for Instagram and Facebook (@vaoystershell) were included. The link drives those with further interest to the VCU Rice Rivers web page hosting the VOSRP. The web provides information about all the program partners and funders including VCZM and NOAA: https://ricerivers.vcu.edu/community-engagement/oyster-shell-recycling/

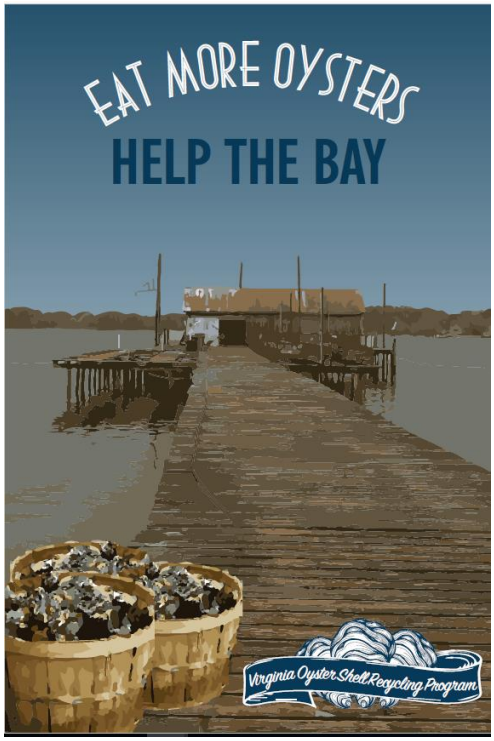


Coaster Design (right image is the back of all coasters)

Coaster Designs Filtration and Taste

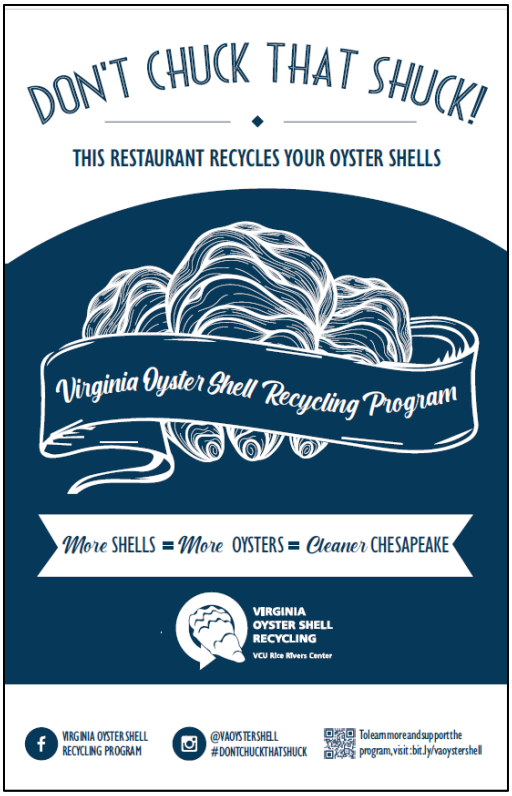


Coaster Design Male or Female



Bill Stuffer Dock

Bill Stuffer oyster tong



Host stand peripheral

As seen in the images of peripheral materials, the intent was to match the style of oyster advertising in the Chesapeake Bay of the 1920-40s with mixed fonts, two color, simple imagery. These were well received by our surveyed restaurant owners, managers and chefs.

Additionally, during the reporting period, the program was invited by ABC-8 Meterologist, Matthew Dinardo to be interviewed regarding the effort. Mr Dinardo participated in the field-based process and created four videos, two short duration for use during the station's weather and longer, web-based, spots that permitted additional detail. All of these can be seen at the WRIC link: https://www.wric.com/news/virginia-news/dont-chuck-the-shuck-how-does-recycling-oysters-help-the-chesapeake-bay/

Additionally, the VCU News featured the interest from ABC8 WRIC on their web: https://lifesciences.vcu.edu/news-and-events/vcu-life-sciences/three-part-8news-story-on-oyster-recycling-shines-light-on-vosrp.html

Mr Dinardo visited restaurant partners, participated in the setting of recycled shell with larval oysters and the distribution of that material in the field. The public reception was very positive and led to an increase in public awareness and participation. Mr Dinardo visited Lemaire restaurant on two occasions for footage.


Left photo: ABC-8 Meteorologist Matthew Dinardo with Hotel Jefferson, Lemaire Executive Chef Patrick Willis
Right Photo: plated oysters for the photo shoot


Left photo: ABC8 Meteorologist Matthew Dinardo setting larvae
Right photo: larval oysters (not obtained with NOAA funding)

Northern Virginia Shell Recycling Pilot Expansion

The project award included the geographic expansion of shell recycling into the northern

Virginia region with a strategic focus on Fairfax County. The Program forged partnerships with Clean Fairfax Council and Fairfax County, which was brokered by the Fairfax Soil and Water Conservation District. Programmatically, the goals, objectives, interest and enthusiasm from the Clean Fairfax Council was a clear fit. This lead to an acknowledgment that it would benefit the program by ensuring it would grow beyond a pilot phase. The Program Manager and interns met with representatives from Fairfax County Waste and the Council to identify a location for a regional storage container. Field meetings on-site in Fairfax, Richmond and with partners in Charlottesville helped inform those individuals and to allow them to experience a full container in-person. Often a barrier to implementation of a shell storage and drop off container is the assumption of it being an offensive, attractive nuisance to both unwanted wildlife and public waste dumping. The partners were made aware that through a managed facility or site, that it was neither of those. New partners from Fairfax County were provided references for them to research and verify their onsite experience; the result of which further confirmed the low effort and maintenance.

The Fairfax County Waste Transfer Facility in Lorton was selected as the final location for a long-term regional storage. A container was donated by Fairfax County Waste and a container hauler was identified that was willing to work with the Program to haul full containers to the Rice Rivers Center for long-term curing.

The geographic expansion into the northern Virginia region of Fairfax County continued to grow through the partnership with Clean Fairfax Council. The Clean Fairfax Council is a valuable partner in the region. Similarly in all markets as the patronage has increased, so has the interest in recycling shell. However, the businesses in Fairfax are limited that serve oysters with a shell waste product and the extended impacts to businesses affected the volume of shell for the region.

To support the development of the new geography, a simple market study was conducted to assess the potential for shell generation. Program interns assessed the regional market based on possible central storage locations, including the I95 and I66 county facilities. Since the container would be stored at the I95 facility, effort was put toward that region to recruit new businesses. Marketing materials were developed to help recruit new businesses and volunteers. The Council maintains a relationship with the Master Naturalists, which has been a consistent partner of the Program. However, due to the ongoing pandemic volunteer based collection never reached full implementation. Materials for collection including buckets, lids communication materials and stickers were provided to the Council in preparation for implementation.

A ribbon cutting event was held at the Fairfax County Waste Transfer Facility to celebrate their new recycling program which included a special ribbon cutting with County Supervisor, Dan Stock executing the actual cutting of the ceremonial ribbon. Additionally, the Supervisory placed the first container of shell into the receptacle for press photos.


Left photo: VOSRP Director, Clean Fairfax Council Director Cole, Fairfax County Supervisor Stock, County Waste Manager Forbes
Right photo: Supervisor Stock delivering first container of shell


Fifteen yard shell recycling container with signage at I-95 Waste Transfer Facility

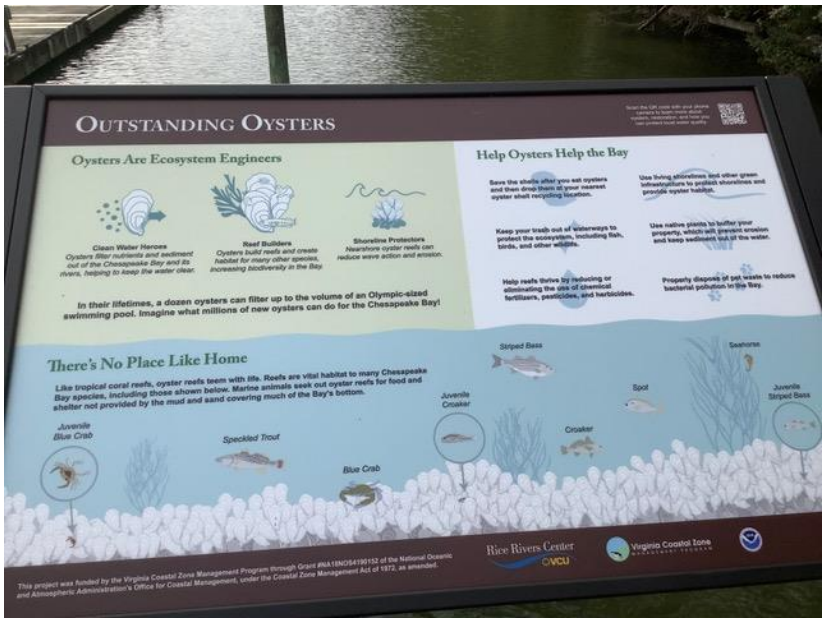
Lower Middle Peninsula Outreach and Education

The award included the development of an outreach plan that builds on the successful model of community engagement and education process employed by VOSRP but enhanced with added contractual capacity in the middle peninsula region. This region included the counties of Middlesex, Matthews and Gloucester with focus on Deltaville. The project partners included Green Fin Studio (formerly Chesapeake Environmental Communications), restoration partners including NOAA, VMRC and VACZM, restoration partners and the Virginia seafood industry. Green Fin Studio developed and was responsible for community engagement and communication for the *Restore Urbanna Creek (RUC)* project. The concept was to include organizing, hosting and delivering public meetings about the project and opportunities for public involvement. However, the COVID-19 pandemic significantly changed how communities would be engaged moving nearly all meetings to remote based approaches. Ultimately, the project included the development of a comprehensive outreach and communications plan for the

counties of Middlesex and Mathews regarding the implementation of oyster restoration goals for the lower Piankatank River but taking a different path capitalizing on the changed communications landscape. The strategy can be seen in the Appendix 1.

The goal of the outreach was to focus on increasing public participation and ultimately investment in the program by local partners. By working with both the public and private sectors, including the seafood industry, would help provide a broader outreach by demonstrating that working together toward a common goal is the preferred approach. The project team met with the Middle Peninsula Planning District Commission to help guide the strategy to the right audience, including the boards and commissions in the region and refine the messaging. By working closely with the restoration project partners for the region to obtain their buy-in and input resulted in a request by NOAA to consider including a broadened audience reflective of diversity and inclusion for the region. A result of the coordinated effort was to establish a shell recycling location in the region. With assistance from the VA Peninsula Service Authority, Deltaville was suggested as a location. Working with the Board of Supervisors of Middlesex County resulted in support to install a bin, establish a volunteer network and recruit restaurants to grow the effort. A partnership and charitable contribution was made by a local hauler and dumpster provider, Ambrose Waste. The owner of Ambrose was an enthusiastic partner and was willing to work to help establish the effort in the region. These relationships are incredibly important to the program as they help ensure low overhead and a sustainable approach. While webinars and online presentations was offered, the local partners were not receptive to the idea but were receptive to implementing actions immediately that would result in tangible outcomes, such as the shell recycling container.

Additionally, through this effort, a partnership with the Deltaville Maritime Museum was established to facilitate a longer-lasting outreach and communication strategy. The opportunity to partner was a special chance to connect restoration to the history of oysters in the Chesapeake. The museum thoughtfully integrated the concepts of restoration in to their onsite and web presence. The museum also permitted the installation of signage on the pier that interpreted the economic and environmental benefits of oyster restoration. Dialogue with the light tackle fishing charter industry on the Piankatank was initiated and will continue beyond the grant cycle. Effort was made to include information for the Watermen’s Heritage Tours in the Piankatank of the goals and partners involved in the restoration efforts.



Oyster Sign 1: benefits of oysters

Oyster sign 2: Restoration in the Piankatank

Oyster Shell Volume Recycled

As mentioned, shell recycling was significantly impacted by the closure of restaurants and businesses due to COVID-19 pandemic, however, prior to the restaurants fully opening, the program assisted the wholesale business by relieving them of their now burgeoning stock of non-returnable seafood. Wholesalers, contacted the Program to request them to assist with disposing of out of date seafood that was unsellable. The program pivoted to accept the material into their containers allowing that material to be properly handled and integrated into the program's material stock. The result was the rapid filling of storage containers and the curing facility. The result totaled 17,000lb of shell. Through the project period, one full can was hauled from

volunteers collecting shell in the full duration of the project award, for a gain of 18,000lb of shell.

Unsellable oyster collected from the wholesale industry to be integrated into the storage and curing process

Additionally, the program was contacted by a seafood freighter that had seafood fall out of health code temperature range while on delivery and requested the program receive those oysters to be integrated into the shell pile. While it's an unusual request, it demonstrated the reach the program has had from the seafood industry in VA. It illustrates the industry recognizes the capacity to accept and integrate material that would otherwise be lost to a landfill. The total volume obtained was 40,000lbs in-shell oysters. Overall, despite the challenges, the program collected more than 75,000lb of shell that would have otherwise been directed to the landfill. In a period where other regional shell collection stalled due to the restrictions and lost seafood sales, the program considers this volume a comfortable amount for future remote setting opportunities.

The program maintains a database that tracks the involved from volunteers, number of events and volume of shell hauled to be cured. This can be seen in the two tables

Event	Date	Details	# of Vols	Hours	Total Hours Effort	Volume
Bagging	1/12/2020		24	3	72	
Bagging	2/15/2020		23	3	69	
Event	3/7/2020	Kiwanis	7	2	14	
Bagging	3/14/2020		22	3	66	
Hauling	3/16/2020	TFC				18000
Hauling	6/11/2020	TFC				17000
Tank Prep	6/24/2020		8	4	32	
Planting	7/20-24/20		43	2	86	
Bagging	9/19/2020		12	3	36	
Bagging	10/8/2020		10	3	30	
Bagging	10/18/2020		12	3	36	
Bagging	10/31/2020		10	3	30	
Bagging	11/4/2020		12	3	36	
Bagging	11/20/2020		11	3	33	
					399	35000

VOSRP Database for 2020

"# of Vols" = # of volunteers; Volume is in pounds.

Event	Date	Details	# of Vols	Hours	Total Hours Effort	Volume
Bagging	1/23/2021		7	3	21	
Event	1/23-31/2021	Kilmarnock Bin	10	2	20	
Bagging	3/18/2021		15	3	45	
Bagging	4/1/2021		12	3	36	
Bagging	4/6/2021		15	3	45	
Bagging	4/15/2021	Rivanna Waste	9	3	27	
Bagging	5/1/2021		9	3	27	
Tank Prep	5/22/2021		4	4	16	
Larvae Set	5/24/2021		1	2	2	
Event	5/27/2021	MN Presentation	0	0	0	
Hauling	6/6/2021	Blizzard				40000
Planting	6/14-18/21		82	2	164	
Planting	7/12-16/21		75	2	150	
Planting	8/2-4/21		69	2	138	
Bagging	10/2/2021		8	3	24	
Event	10/4/2021	Covenant Woods	0	0	0	
Bagging	10/16/2021		11	3	33	
Bagging	11/13/2021		16	3	48	
Event	11/13/2021	VLM	8	6.5	52	
Bagging	12/11/2021		12	3	36	
					884	40000

VOSRP Database for 2021

Delivery of out of health code live oysters for storage and curing

The overall grant supported considerable expansion and implementation of the VCU RRC VOSRP. The increased awareness and marketing materials in the Richmond region have benefited the program statewide. The increased in shell collected during the time have ensured there is suitable material for fieldwork. The geographic expansion to the Fairfax region increased the footprint of the program, added strong program partners and helped reroute shell destined for the landfill while connecting the public geographically distant from the intertidal portions of the Chesapeake with oyster restoration opportunities from shell recycling. Finally, the support to build a stronger base in the lower middle peninsula in the counties of Mathews, Middlesex and Gloucester has led to long term educational materials, a partnership with a regional maritime museum and new shell recycling opportunities in the region.

Appendix 1: Middle Peninsula Outreach Plan

Piankatank Outreach Outline
Project Title (FY18 310 Award)
Virginia Oyster Shell Recycling and Outreach to benefit the lower Piankatank

Project Extended to Dec 31, 2021

To Meet March 31, 2021 Deadline

1. Focused outreach via webinar to Gloucester, Mathews, Middlesex and MPPDC Board to meet above
    a. Convey info of restoration efforts
    b. Connection to WIP3
    c. Opportunities for involvement
    d. Possibly build support for shell bin
2. Coordinate with seafood industry on message development and as implementation vehicle
    a. Watermens heritage tours
3. Possibly install bin in VPPSA regional recycling site: Saluda, Urbanna, Deltaville, Mathews

To Meet June 30, 2021 Deadline

1. Focused outreach via webinar to Gloucester, Mathews, Middlesex and MPPDC Board to meet above
    a. Convey info of restoration efforts
    b. Connection to WIP3
    c. Opportunities for involvement
    d. Possibly build support for shell bin
2. Coordinate with seafood industry on message development and as implementation vehicle
    a. Watermen's Heritage tours
3. Install bin in VPPSA regional recycling site: Saluda, Urbanna, Deltaville, Mathews
4. Explore Deltaville Maritime Museum partnership
    a. Possibly with TOGA
    b. Explore industry connection
5. Explore connections to curricula
    a. Existing CB oyster curriculum
    b. VOSRP 12-module curriculum
    c. VOSRP Virtual Field Trip for k-12
    d. BWET
    e. Aylett Country Day School and CBGS
6. Draw connections to DEI
    a. Interview local leaders representing diverse backgrounds
7. Explore connections with recreational fishing sector
    a. Small vessel charter

To meet Dec 31, 2021 Deadline

1. Focused outreach via webinar to Gloucester, Mathews, Middlesex and MPPDC Board to meet above
    a. Convey info of restoration efforts
    b. Connection to WIP3
    c. Opportunities for involvement
    d. Possibly build support for shell bin
2. Coordinate with seafood industry on message development and as implementation vehicle
    a. Watermens heritage tours
3. Install bin in VPPSA regional recycling site: Saluda, Urbanna, Deltaville, Mathews
4. Establish Deltaville Maritime Museum partnership
    a. Possibly with TOGA
    b. Explore industry connection
5. Make tangible connections to curricula
    a. Existing CB oyster curriculum
    b. VOSRP 12-module curriculum
    c. VOSRP Virtual Field Trip for k-12
    d. BWET
    e. Aylett Country Day School and CBGS
6. Draw connections to DEI
    b. Interview local leaders representing diverse backgrounds
7. Make connections with recreational fishing sector
    c. Small vessel charter

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